



## *Overview of the new primary science curriculum: key themes, progression and managing change*

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# Aims



- To be familiar with the changes in the new curriculum and how these affect current curriculum maps
- To consider how to ensure progression and measure progress
- To explore different ways to enrich the core content

# Programme



Time	Session
9.30 – 11.00	How has the curriculum changed and the implications for your schools?
11.00 – 11.15	Break
11.15 – 12.30	How can we ensure progression and measure progress?
12.30 – 1.30	Lunch
1.30 – 2.45	Working scientifically
2.45 – 3.15	How can we link science to the wider curriculum?
3.15 – 3.30	Next steps and evaluations

# The new curriculum - timeline



- Finalised in September 2013
- Can be implemented in year 3 and 4 now, must be in place for September 2014
- Year 1 and 5 in place for September 2014
- Year 2 and 6 in place for September 2015

# The new curriculum - rebranding



- Scientific enquiry is now called working scientifically- it is still at the core of the curriculum
- SC2 – life processes and living things
  - Animals, including humans
  - Plants
  - Living things and their habitats
- SC2 – materials and their properties
  - Everyday materials
  - Uses of everyday materials
  - Rocks
  - States of matter
  - Properties and changes of materials
- SC4 – physical processes
  - Light
  - Forces and magnets
  - Sound
  - Electricity
  - Earth and space

# The new curriculum - changes



- Some content has gone
  - Do you want to keep it?
- Some has moved
  - Do you want to/need to move it?
- Some is new
  - Do we need to panic?

# What has gone?



- About the role of drugs as medicines
- Recognise similarities and differences between themselves and others, and to treat others with sensitivity
- Care for the environment.

# What has moved?



- No physics topics in KS1 at all
- How materials change when heated - no longer in KS1
- Things have moved in KS2 if you followed QCA breakdown into year groups e.g. sound only in year 4



# What is new?



- Seasonal changes in year 1
- Evolution and inheritance in year 6
- Some content is broader or more demanding
  - Identifying and naming common plants and animals in year 1
  - Fossils in year 3
  - Digestive system in humans in year 4
  - Mechanisms in year 5
  - Light in year 6
  - Electricity in year 6

# Progression



- Progression in knowledge is more clearly mapped out

# New opportunities



- Greater focus on outdoor learning
- An opportunity to rethink how we approach science
  - There are not 6 units per year
  - Ongoing units – seasonal change, plants etc.
  - Revisiting concepts in a different context - materials in KS1

# Allocation of time



39 weeks in school

- How much time should you spend on each unit?
- Look at a year group – decide what percentage of time should be spent on each set of statements – it should add to 100%
- Send an envoy to another group to compare your ideas
- These statements only make up a part of your school's curriculum

# Break



# Assessment to show attainment



The current system of levels will be removed and not replaced.

Only one Attainment target

‘By the end of each key stage, pupils are expected to **know, apply and understand** the matters, skills and processes specified in the relevant programme of study.’ page 4 NC

# Consultation on primary assessment and accountability



The proposals in this consultation are based on these key principles:

- ongoing assessment is a crucial part of effective teaching, but it should be left to schools. The government should only prescribe how statutory end of key stage assessment is conducted;
- external school-level accountability is important, but must be fair. In particular, measures of progress should be given at least as much weight as attainment;
- a wide range of school performance information should be published to help parents and others to hold schools to account in a fair, rounded way; and
- both summative teacher assessment and external testing are important forms of statutory assessment and both should be published.

# Consultation on primary assessment and accountability



We expect schools to have a curriculum and assessment framework that meets a set of core principles and:

- sets out steps so that pupils reach or exceed the end of key stage expectations in the new national curriculum;
- enables them to measure whether pupils are on track to meet end of key stage expectations;
- enables them to pinpoint the aspects of the curriculum in which pupils are falling behind, and recognise exceptional performance;
- supports teaching planning for all pupils; and
- enables them to report regularly to parents and, where pupils move to other schools, providing clear information about each pupils strengths, weaknesses and progress towards the end of key stage expectations.



# Consultation on primary assessment and accountability



- Teachers will continue to track pupils' progress and provide regular information to parents. How they do so will be for schools to decide, suited to the curriculum they teach. We will not prescribe a single system for ongoing assessment and reporting.
- We will work with teaching schools, professional associations, subject experts, education publishers and external test developers to signpost schools to a range of potential approaches to identify and share examples of good practice for schools to draw upon.

# Assessment to show attainment



- Take one knowledge statement
- Give an example of a child
  - Knowing
  - Applying
  - Understanding

# Assessment to show attainment



- Will your current assessment system enable you to do this?
- What good practice can you share?

# Resources to support knowledge assessment



# Assessment to show progress



- On going formative assessment feeds in to regular summative judgements
- Tracking
  - What percentage have met expectations?
  - What percentage are exceeding expectations?


# Working scientifically



During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions.

# Working scientifically



During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing **accuracy and precision**, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- **using test results to make predictions to set up further comparative and fair tests**
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and **degree of trust in results**, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments.

# Accuracy and precision



Word	Meaning
Accuracy	How close they are to the true value
True value	This is the accurate value which would be found if the quality could be measured without any uncertainties.
Precision of apparatus	Is related to the smallest scale division on the measuring instrument that is being used.
Precision of a data point or reading	The precision of a data point is related to the number of significant figures to which a value has been measured
Precision of a data set	A precise data set is one which is showing results that are close together; ie it has small range.
Reliability of results	Reliable results are ones that show a data set that are close together after several repeats
Reliability of findings	Reliable findings are ones that show a similar outcome from a different source. Eg the experiment matches results found by other scientists.
Reliability of source	A source of data that can be relied upon not to show bias.
Validity of data	Does the evidence provide the answer to the question?
Validity of conclusions	Conclusions are valid if they are supported by valid and reliable data.



# Assessment to show progress



- On going formative assessment feeds in to regular summative judgements
- Tracking
  - What percentage have met expectations?
  - What percentage are exceeding expectations?

# Linking to the broader curriculum



- English and Maths links
- Topics/themes

# Resources



- Materials for absorbency
- Pipettes/syringes
- Trays
- Water bottles
- Alka seltzer tablets
- Pots
- Stop watches